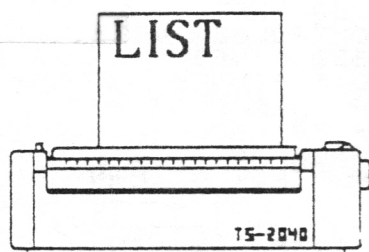


L.I.S.T.ing Newsletter

The newsletter of the Long Island Sinclair Timex group.

*** Incorporating NYTSE ***



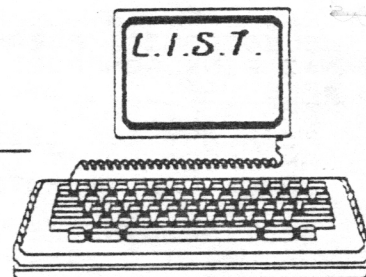
Issue:

JANUARY

MONTH

1989

YEAR



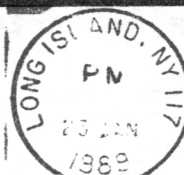
SPECIAL ANNIVERSARY ISSUE ***

L.I.S.T. membership for one year is \$15.00. Library tapes are available. Write to the below address for further information.

L.I.S.T.

5 Peri Lane

Valley Stream, NY 11581



TO:

Don Lambert JAN/90
3310 Clover Dr. S
Cedar Rapids, IA
52404



FIRST CLASS MAIL
DATED MEETING NOTICE
Please DON'T delay!!!

{1}

LIST OFFICERS

PRE. HARVEY RAIT
TREAS. ROBERT MOLLOY
EDITOR. FRED STERN
LIBR. TOM SKAPINSKI

PLEASE SEND SUBMISSIONS OR
INQUIRIES TO:

MR. HARVEY RAIT
8 WEST LANE
VALLEY STREAM, N.Y. 11581

COMING EVENTS:

FEBRUARY 5, 1989 LIMARC
ELECTRONICS FLEAMARKET
41 PINELAWN ROAD, MELVILLE, L.I.
FEBRUARY 12, 1989 LIST MEETING
AND AUCTION
FEBRUARY 26, 1989 COMPUTER SHOW
AND FLEAMARKET.
ROYCE CARLIN HOTEL, MELVILLE

MEETING MINUTES
JANUARY 8, 1989

BEFORE THE MEETING, ALL WHO
ATTENDED HAD A CHANCE TO SEE
THE EQUIPMENT WHICH WILL BE
AUCTIONED DURING THE NEXT LIST
MEETING.
THE MEETING STARTED AT 2:10PM.
HARVEY READ LETTERS RECEIVED
FROM MEMBERS.
DONALD LAMBERT - BRIEFLY TOLD
OF HIS GEL CELL BATTERY BACKUP
PROJECT AND THAT HE WILL SOON
BE THE PROUD OWNER OF A LARKEN
DISK DRIVE SYSTEM.
WHEN HE IS FINISHED HE CAN WRITE
AN ARTICLE ABOUT THE BATTERY
BACKUP SYSTEM FOR LISTING USING
THE DISK DRIVE AND TASMWD.
BOB HOWARD - TELLS A STORY ON
HOW HE ACQUIRED A TI-855 PRINTER
WITH 3 FONT MODULES FOR A TRULY
BARGAIN PRICE. THE PRINTER IS
HOOKED-UP TO HIS QL.

BOB GILDER HAD THE FOLLOWING
NEWS:
QL WILL NO LONGER BE SOLD AT
NEWS STANDS. THEY CAN BE
ACQUIRED THROUGH SHARP, OR BY
SUBSCRIPTION FROM THE PUBLISHER.
FEBRUARY 5, 1989 LIMARC
ELECTRONICS FLEAMARKET
ELECTICIANS HALL, 41 PINELAWN RD
MELVILLE, N.Y. EAST OF RT 110
AND NORTH OF THE LIE.

LEMKE SOFTWARE DEVELOPMENT
2144 WHITE OAK
WICHITA, KS 67207
IS PUBLISHING A TIMEX/SINCLAIR
NEWS LETTER. IF YOU ARE
INTERESTED IN SUBSCRIBING,
CONTACT THEM AT THE ABOVE
ADDRESS.

VENDOR REPORT

ACTIVE ELECTRONICS
3340 VETERANS MEMORIAL HWY
BOHEMIA, NY 11716

ACTIVE IS AN ELECTRONIC
COMPONENT DISTRIBUTOR WHO HAS
OPENED A STORE ON LONG ISLAND.
IN PLAIN WORDS, YOU NAME IT.
ACTIVE HAS IT IN COMPONENTS.
IT IS AN EXPERIMENTERS/HACKERS
DREAM COME TRUE. BUT THE BEST
IS THE REASONABLE PRICES THAT
THEY CHARGE.
CHECK THEM OUT, ASK FOR HARRY,
AND SEE FOR YOURSELF.

COME TO THE AUCTION

BEFORE THE NEXT MEETING, LIST
IS GOING TO AUCTION OFF RECENTLY
ACQUIRED EQUIPMENT.
THE AUCTION WILL BE OPENED TO
ALL LIST MEMBERS IN GOOD
STANDING, WHO ATTEND THE NEXT
MEETING OF FEBRUARY 12, 1989.
BELOW IS A PARTIAL LIST OF THE
GOODIES:
1, TS2068 W/ POWER SUPPLY
1, AERCO DISK CONTROLLER WITH
256K RAM, ENCLOSED DIVES
POWER SUPPLY AND SOFTWARE
1, AERCO PRINTER INTERFACE
1, PC8300 W/ 32K RAMPACK
PLEASE MAKE ARRANGEMENTS TO
ATTEND THIS, OUR FIRST OF MANY
LIST AUCTIONS

THE QL MICROCASSETTES ARE IN.
THEY ARE SOLD AS A PACKAGE OF
FOUR (4) IN A WALLET STYLE
HOLDER FOR \$10.00. SEE HARVEY
BEFORE OR AFTER THE MEETING.

CLASSIFIEDS

THIS CLASSIFIED SECTION IS
AVAILABLE TO ALL LIST MEMBERS
FREE OF CHARGE.
THE ONLY RESTRICTION IS THAT
IT IS TO BE USED ONLY FOR THE
SEEKING, SELLING OR SWAPPING
OF SINCLAIR, TIMEX OR MICROACE
COMPUTER EQUIPMENT, PERIPHERALS
AND SOFTWARE.
LISTING, LIST, AND ITS OFFICERS
DO NOT ENDORSE, WARRANTY, OR
GUARANTEE ANY OF THE ITEMS
LISTED IN THIS CLASSIFIED
SECTION

A FINAL WORD

MY NAME IS FRED STERN, AND I AM
THE EDITOR OF THIS EDITION OF LIS
TING.
STONEY M. WAS REPORTED TO BE
HOME, RECUPERATING FROM
PNEUMONIA. GET WELL STONEY. WE
HOPE TO SEE YOU AT THE AUCTION.
DURING A VISIT I MADE TO ZEBRA
SYSTEMS, I WAS INFORMED BY
STUART NEUFELD THAT HE WAS
PHASING OUT HIS EXISTING STOCK
OF TIMEX SINCLAIR PRODUCTS.
NOW IS THE TIME TO PURCHASE
ZEBRA-TIMEX PERIPHERALS BEFORE
THEY ARE GONE.
THEY SAY BAD NEWS COMES X3.
AS REPORTED ABOVE, ZEBRA IS
PULLING ITS TIMEX SUPPORT.
SINCE JAN/FEB 89 REPORTS THAT
KNIGHTED COMPUTER IS ALSO
DROPPING ITS TIMEX SUPPORT.
WHO WILL BE NO. 3?
I AM HOPING THAT IN FUTURE
ISSUES OF LISTING I CAN REPORT
TO YOU OF NEW VENDORS OF TIMEX
SINCLAIR HARDWARE AND SOFTWARE.

TS2068 HOME ROM BYPASS

A major barrier to fixing the problems in HOME ROM is one of access. Even though the ROM is socketed, you still have to open up the case and risk damage.

This article shows how to replace HOME ROM without touching a screw. It is not really necessary to replace ROM with EPROM. A battery backed-up static RAM would do as well if equipped with a READ ONLY switch. That way, the RAM can be written and then be switched to write-protect state. The saving in time over EPROM burning is impressive. Of course you will use EPROM in the end.

This unit does not preclude using the DOCK port if it has an extension connector and plugs into the DOCK slot. If you have a buss expander with slots, it can mount there, leaving the DOCK slot clear, but the former is what most will use.

The design in Fig 1 is for the case where you might have both. It works just as well if you don't have a buss expander.

Inside the case, and not externally available, is the signal which enables the HOME ROM chip. This signal is labeled ROMCS. Our problem is to get ROMCS externally by a logic operation, and to prevent conflict with the internal ROM.

Preventing conflict with internal ROM is easy. We just issue BE whenever HOME ROM is addressed.

Detecting when HOME ROM is being addressed is a bit more difficult, but quite straight-forward.

The HOME ROM is NOT being addressed whenever:

1. Either of the address lines A14 or A15 is high,
2. EXROM is low for EXROM addressed,
3. ROMCS is low for DOCK addressed,
4. BE is low from another addressed bank,
5. MREQ is high, indicating I/O or interrupt cycle, or
5. RD is high, indicating a write cycle.

What logic could be simpler to implement?

For over a year, I have used such a system to implement bank switching, but external "ROM" is core memory instead of battery backed-up RAM. It works like a charm, and can store grandfather copies of trial ROM images.

Now that the creation of new ROMs for the TS2068 has gotten a lot of attention, it would be a shame to let that year of working experience go to waste.

Much of the "clutter" in the existing ROM should be removed to an expansion bank. The most glaring example of this is how much code is wasted supporting COPY and the TS2040 printer. The same applies to much of LLIST. A similar situation exists in EXROM for tape operations, but this can be salvaged by modifying it so the mikrodrive and other tape loop devices can use it.

Some ROM routines, like SKIPIT, should be relocated back where they were originally; in this case down four bytes. (The correct address was maintained intact in the routine PASSEM in EXROM.)

Removing two of the barrier error calls gets it back to the right HOME ROM address.

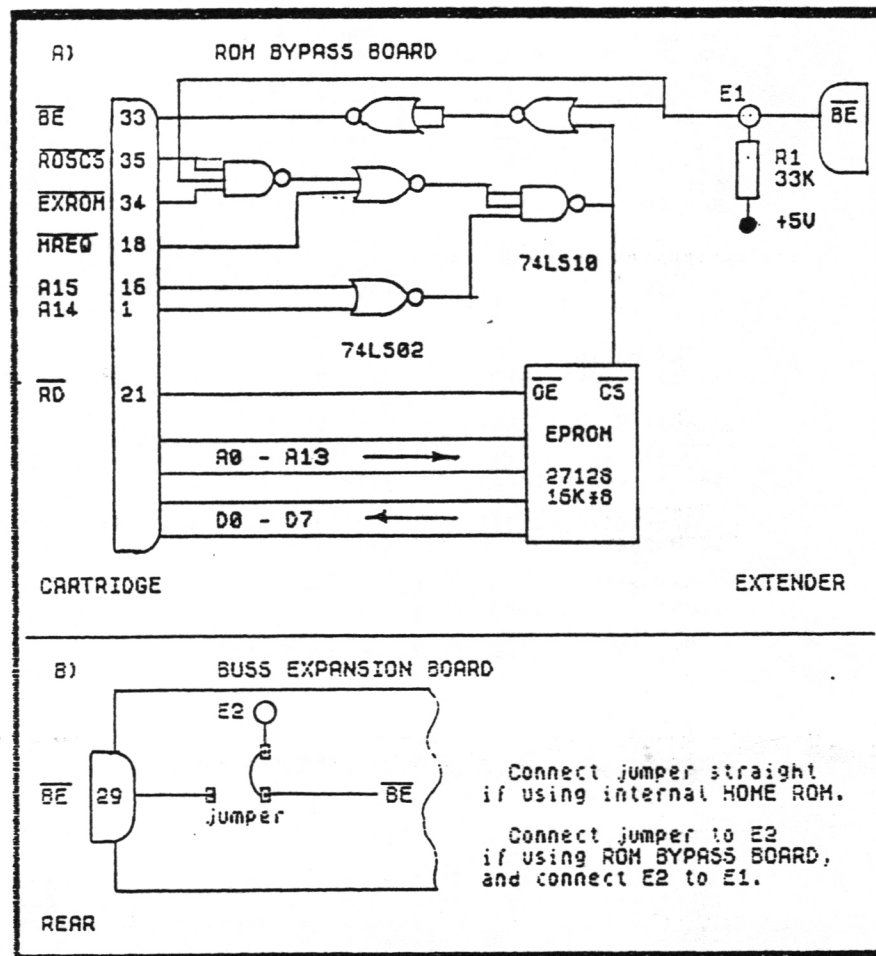
It is easy to go overboard and "fix" things which might please you, but not someone else; or to assume an error exists when it is merely poorly understood how it was supposed to work. I have sweated many hours over something that looked wrong, then seeing something quite ingenious through the fog in my mind.

PLEASE, PLEASE contact me before going ahead with new ROM developments. I have made more mistakes than anybody!

William J. Pedersen
1120 Merrifield S.E.
Grand Rapids, MI 49507



Fig 1: HOME ROM BYPASS

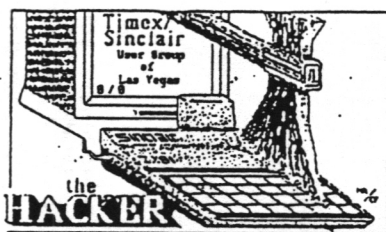


PART 3. In next issue of
LISTING



(I worked it out one night, when I was very bored.)

52155



```

1100 PLOT 0,150
1100 DRAW 100,0
1100 REM #1
1100 PLOT 0,150
1100 DRAW 100,0
1100 REM #1
1100 PLOT 0,150
1100 DRAW 104,0
1100 PLOT 100,150
1100 DRAW 100,0
1100 REM #1
1100 PLOT 0,157
1100 DRAW 104,0
1100 PLOT 100,157
1100 DRAW 100,0
1100 REM #1
1100 PLOT 0,150: DRAW 0,0
1100 PLOT 20,150: DRAW 4,0
1100 PLOT 30,150: DRAW 4,0
1100 PLOT 30,150: DRAW 0,0
1100 PLOT 51,150: DRAW 4,0
1100 PLOT 67,150: DRAW 4,0
1100 PLOT 70,150: DRAW 0,0
1100 PLOT 90,150: DRAW 4,0
1100 PLOT 100,150: DRAW 2,0
1100 REM #1
1100 PLOT 0,150: DRAW 0,0
1100 PLOT 20,150: DRAW 4,0
1100 PLOT 30,150: DRAW 4,0
1100 PLOT 30,150: DRAW 7,0
1100 PLOT 51,150: DRAW 4,0
1100 PLOT 67,150: DRAW 0,0
1100 PLOT 77,150: DRAW 7,0
1100 PLOT 80,150: DRAW 0,0
1100 PLOT 113,150: DRAW 2,0
1100 PLOT 140,150: DRAW 2,0
1100 PLOT 150,150: DRAW 2,0
1100 PLOT 193,150: DRAW 2,0
1100 REM #7
1100 PLOT 0,154: DRAW 0,0
1100 PLOT 22,154: DRAW 4,0
1100 PLOT 30,154: DRAW 4,0
1100 PLOT 40,154: DRAW 0,0
1100 PLOT 51,154: DRAW 4,0
1100 PLOT 67,154: DRAW 0,0
1100 PLOT 70,154: DRAW 0,0
1100 PLOT 80,154: DRAW 0,0
1100 PLOT 113,154: DRAW 2,0
1100 PLOT 140,154: DRAW 2,0
1100 PLOT 150,154: DRAW 2,0
1100 PLOT 193,154: DRAW 2,0
1100 REM #8
1100 PLOT 0,153: DRAW 12,0
1100 PLOT 10,153: DRAW 10,0
1100 PLOT 30,153: DRAW 4,0
1100 PLOT 41,153: DRAW 0,0
1100 PLOT 51,153: DRAW 4,0
1100 PLOT 60,153: DRAW 10,0
1100 PLOT 70,153: DRAW 0,0
1100 PLOT 87,153: DRAW 7,0
1100 PLOT 140,153: DRAW 2,0
1100 PLOT 193,153: DRAW 2,0

```

[illegible]

[illegible]

```
0000 PLOT 0,140: DRAW 10,0  
0001 PLOT 16,140: DRAW 10,0  
0002 PLOT 32,140: DRAW 10,0  
0003 PLOT 48,140: DRAW 10,0  
0004 PLOT 64,140: DRAW 10,0  
0005 PLOT 80,140: DRAW 10,0  
0006 PLOT 96,140: DRAW 10,0  
0007 PLOT 112,140: DRAW 10,0  
0008 PLOT 128,140: DRAW 10,0  
0009 PLOT 144,140: DRAW 10,0  
0010 PLOT 160,140: DRAW 10,0  
0011 PLOT 176,140: DRAW 10,0  
0012 PLOT 192,140: DRAW 10,0  
0013 PLOT 208,140: DRAW 10,0  
0014 PLOT 224,140: DRAW 10,0  
0015 PLOT 240,140: DRAW 10,0  
0016 PLOT 256,140: DRAW 10,0  
0017 PLOT 272,140: DRAW 10,0  
0018 PLOT 288,140: DRAW 10,0  
0019 PLOT 304,140: DRAW 10,0  
0020 PLOT 320,140: DRAW 10,0  
0021 PLOT 336,140: DRAW 10,0  
0022 PLOT 352,140: DRAW 10,0  
0023 PLOT 368,140: DRAW 10,0  
0024 PLOT 384,140: DRAW 10,0  
0025 PLOT 400,140: DRAW 10,0  
0026 PLOT 416,140: DRAW 10,0  
0027 PLOT 432,140: DRAW 10,0  
0028 PLOT 448,140: DRAW 10,0  
0029 PLOT 464,140: DRAW 10,0  
0030 PLOT 480,140: DRAW 10,0  
0031 PLOT 496,140: DRAW 10,0  
0032 PLOT 512,140: DRAW 10,0  
0033 PLOT 528,140: DRAW 10,0  
0034 PLOT 544,140: DRAW 10,0  
0035 PLOT 560,140: DRAW 10,0  
0036 PLOT 576,140: DRAW 10,0  
0037 PLOT 592,140: DRAW 10,0  
0038 PLOT 608,140: DRAW 10,0  
0039 PLOT 624,140: DRAW 10,0  
0040 PLOT 640,140: DRAW 10,0  
0041 PLOT 656,140: DRAW 10,0  
0042 PLOT 672,140: DRAW 10,0  
0043 PLOT 688,140: DRAW 10,0  
0044 PLOT 704,140: DRAW 10,0  
0045 PLOT 720,140: DRAW 10,0  
0046 PLOT 736,140: DRAW 10,0  
0047 PLOT 752,140: DRAW 10,0  
0048 PLOT 768,140: DRAW 10,0  
0049 PLOT 784,140: DRAW 10,0  
0050 PLOT 800,140: DRAW 10,0  
0051 PLOT 816,140: DRAW 10,0  
0052 PLOT 832,140: DRAW 10,0  
0053 PLOT 848,140: DRAW 10,0  
0054 PLOT 864,140: DRAW 10,0  
0055 PLOT 880,140: DRAW 10,0  
0056 PLOT 896,140: DRAW 10,0  
0057 PLOT 912,140: DRAW 10,0  
0058 PLOT 928,140: DRAW 10,0  
0059 PLOT 944,140: DRAW 10,0  
0060 PLOT 960,140: DRAW 10,0  
0061 PLOT 976,140: DRAW 10,0  
0062 PLOT 992,140: DRAW 10,0  
0063 PLOT 1008,140: DRAW 10,0  
0064 PLOT 1024,140: DRAW 10,0  
0065 PLOT 1040,140: DRAW 10,0  
0066 PLOT 1056,140: DRAW 10,0  
0067 PLOT 1072,140: DRAW 10,0  
0068 PLOT 1088,140: DRAW 10,0  
0069 PLOT 1104,140: DRAW 10,0  
0070 PLOT 1120,140: DRAW 10,0  
0071 PLOT 1136,140: DRAW 10,0  
0072 PLOT 1152,140: DRAW 10,0  
0073 PLOT 1168,140: DRAW 10,0  
0074 PLOT 1184,140: DRAW 10,0  
0075 PLOT 1200,140: DRAW 10,0  
0076 PLOT 1216,140: DRAW 10,0  
0077 PLOT 1232,140: DRAW 10,0  
0078 PLOT 1248,140: DRAW 10,0  
0079 PLOT 1264,140: DRAW 10,0  
0080 PLOT 1280,140: DRAW 10,0  
0081 PLOT 1296,140: DRAW 10,0  
0082 PLOT 1312,140: DRAW 10,0  
0083 PLOT 1328,140: DRAW 10,0  
0084 PLOT 1344,140: DRAW 10,0  
0085 PLOT 1360,140: DRAW 10,0  
0086 PLOT 1376,140: DRAW 10,0  
0087 PLOT 1392,140: DRAW 10,0  
0088 PLOT 1408,140: DRAW 10,0  
0089 PLOT 1424,140: DRAW 10,0  
0090 PLOT 1440,140: DRAW 10,0  
0091 PLOT 1456,140: DRAW 10,0  
0092 PLOT 1472,140: DRAW 10,0  
0093 PLOT 1488,140: DRAW 10,0  
0094 PLOT 1504,140: DRAW 10,0  
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0097 PLOT 1552,140: DRAW 10,0  
0098 PLOT 1568,140: DRAW 10,0  
0099 PLOT 1584,140: DRAW 10,0  
0100 PLOT 1600,140: DRAW 10,0  
0101 PLOT 1616,140: DRAW 10,0  
0102 PLOT 1632,140: DRAW 10,0  
0103 PLOT 1648,140: DRAW 10,0  
0104 PLOT 1664,140: DRAW 10,0  
0105 PLOT 1680,140: DRAW 10,0  
0106 PLOT 1696,140: DRAW 10,0  
0107 PLOT 1712,140: DRAW 10,0  
0108 PLOT 1728,140: DRAW 10,0  
0109 PLOT 1744,140: DRAW 10,0  
0110 PLOT 1760,140: DRAW 10,0  
0111 PLOT 1776,140: DRAW 10,0  
0112 PLOT 1792,140: DRAW 10,0  
0113 PLOT 1808,140: DRAW 10,0  
0114 PLOT 1824,140: DRAW 10,0  
0115 PLOT 1840,140: DRAW 10,0  
0116 PLOT 1856,140: DRAW 10,0  
0117 PLOT 1872,140: DRAW 10,0  
0118 PLOT 1888,140: DRAW 10,0  
0119 PLOT 1904,140: DRAW 10,0  
0120 PLOT 1920,140: DRAW 10,0  
0121 PLOT 1936,140: DRAW 10,0  
0122 PLOT 1952,140: DRAW 10,0  
0123 PLOT 1968,140: DRAW 10,0  
0124 PLOT 1984,140: DRAW 10,0  
0125 PLOT 2000,140: DRAW 10,0  
0126 PLOT 2016,140: DRAW 10,0  
0127 PLOT 2032,140: DRAW 10,0  
0128 PLOT 2048,140: DRAW 10,0  
0129 PLOT 2064,140: DRAW 10,0  
0130 PLOT 2080,140: DRAW 10,0  
0131 PLOT 2096,140: DRAW 10,0  
0132 PLOT 2112,140: DRAW 10,0  
0133 PLOT 2128,140: DRAW 10,0  
0134 PLOT 2144,140: DRAW 10,0  
0135 PLOT 2160,140: DRAW 10,0  
0136 PLOT 2176,140: DRAW 10,0  
0137 PLOT 2192,140: DRAW 10,0  
0138 PLOT 2208,140: DRAW 10,0  
0139 PLOT 2224,140: DRAW 10,0  
0140 PLOT 2240,140: DRAW 10,0  
0141 PLOT 2256,140: DRAW 10,0  
0142 PLOT 2272,140: DRAW 10,0  
0143 PLOT 2288,140: DRAW 10,0  
0144 PLOT 2304,140: DRAW 10,0  
0145 PLOT 2320,140: DRAW 10,0  
0146 PLOT 2336,140: DRAW 10,0  
0147 PLOT 2352,140: DRAW 10,0  
0148 PLOT 2368,140: DRAW 10,0  
0149 PLOT 2384,140: DRAW 10,0  
0150 PLOT 2400,140: DRAW 10,0  
0151 PLOT 2416,140: DRAW 10,0  
0152 PLOT 2432,140: DRAW 10,0  
0153 PLOT 2448,140: DRAW 10,0  
0154 PLOT 2464,140: DRAW 10,0  
0155 PLOT 2480,140: DRAW 10,0  
0156 PLOT 2496,140: DRAW 10,0  
0157 PLOT 2512,140: DRAW 10,0  
0158 PLOT 2528,140: DRAW 10,0  
0159 PLOT 2544,140: DRAW 10,0  
0160 PLOT 2560,140: DRAW 10,0  
0161 PLOT 2576,140: DRAW 10,0  
0162 PLOT 2592,140: DRAW 10,0  
0163 PLOT 2608,140: DRAW 10,0  
0164 PLOT 2624,140: DRAW 10,0  
0165 PLOT 2640,140: DRAW 10,0  
0166 PLOT 2656,140: DRAW 10,0  
0167 PLOT 2672,140: DRAW 10,0  
0168 PLOT 2688,140: DRAW 10,0  
0169 PLOT 2704,140: DRAW 10,0  
0170 PLOT 2720,140: DRAW 10,0  
0171 PLOT 2736,140: DRAW 10,0  
0172 PLOT 2752,140: DRAW 10,0  
0173 PLOT 2768,1
```

By Keith Skapinski

```
10 REM Epson 3X2 Screen Copy
20 REM December 4,1988
25 REM !INT I,J,T
26 REM ! OPEN #
```

Double Density Screen 1 of 2
COPY Utility?

```
30 OUT 127,27: GO SUB 1000: OUT 127,CODE "A": GO SUB 1000: OUT 127,8: GO SUB 1
000
40 FOR i=175 TO 0 STEP -4
50 OUT 127,27: GO SUB 1000: OUT 127,CODE "L": GO SUB 1000: OUT 127,0: GO SUB 1
000: OUT 127,3: GO SUB 1000
60 FOR j=0 TO 255
70 LET t=0
80 IF POINT (j,i) THEN LET t=t+192
90 IF POINT (j,i-1) THEN LET t=t+48
100 IF POINT (j,i-2) THEN LET t=t+12
110 IF POINT (j,i-3) THEN LET t=t+3
115 IF INKEY#=" " THEN GO TO 1020
120 OUT 127,t: GO SUB 1000: OUT 127,t: GO SUB 1000: OUT 127,T: GO SUB 1000
130 NEXT j
140 OUT 127,10: GO SUB 1000
150 NEXT i
160 OUT 127,27: GO SUB 1000: OUT 127,CODE "2": GO SUB 1000
170 GO TO 1020
1000 IF IN 127(>)109 AND IN 127(>)237 THEN GO TO 1000
1010 RETURN
1020 STOP
1030 REM ! CLOSE #
```

(Produces darker than
normal copy..about
Two Times normal size)

START ADDR.=64750 LEN.=604 CLEAR 64749 FIRST

205	23	255	33	74	255	34	108	92	33	127	0	229	33	27	0	193	237	105	205
144	254	33	127	0	229	33	65	0	193	237	105	205	144	254	33	127	0	229	33
8	0	193	237	105	205	144	254	33	175	0	34	74	255	229	33	0	0	34	80
255	33	252	255	34	82	255	203	124	225	195	96	254	33	127	0	229	33	27	0
193	237	105	205	144	254	33	127	0	229	33	76	0	193	237	105	205	144	254	33
127	0	229	33	0	0	193	237	105	205	144	254	33	127	0	229	33	3	0	193
237	105	205	144	254	33	0	0	34	76	255	229	33	255	0	34	84	255	225	195
53	254	33	0	0	34	78	255	42	76	255	229	42	74	255	193	69	205	59	255
124	181	202	157	253	42	78	255	17	192	0	25	34	78	255	42	76	255	229	42
74	255	43	193	69	205	59	255	124	181	202	185	253	42	78	255	17	48	0	25
34	78	255	42	76	255	229	42	74	255	43	43	193	69	205	59	255	124	181	202
214	253	42	78	255	17	12	0	25	34	78	255	42	76	255	229	42	74	255	43
43	43	193	69	205	59	255	124	181	202	243	253	42	78	255	35	35	35	34	78
255	205	28	255	205	11	255	1	0	32	205	205	254	124	181	194	187	254	205	78
19	33	127	0	229	42	78	255	193	237	105	205	144	254	33	127	0	229	42	78
255	193	237	105	205	144	254	33	127	0	229	42	78	255	193	237	105	205	144	254
42	76	255	35	34	76	255	237	91	84	255	235	167	237	82	226	67	254	124	238
128	242	124	253	33	127	0	229	33	10	0	193	237	105	205	144	254	42	74	255
237	91	82	255	25	203	122	34	74	255	237	91	80	255	32	1	235	167	237	82
226	112	254	124	238	128	242	55	253	33	127	0	229	33	27	0	193	237	105	205
144	254	33	127	0	229	33	50	0	193	237	105	205	144	254	195	187	254	33	127
0	68	77	237	104	38	0	17	109	0	205	197	254	229	33	127	0	68	77	237
104	38	0	17	237	0	205	197	254	124	181	209	40	1	235	124	181	194	144	254
201	33	22	43	217	201	33	22	43	217	201	175	237	82	103	111	200	44	201	62
7	15	245	205	175	47	213	197	205	175	47	225	124	181	227	120	32	11	177	193
40	4	241	63	24	22	241	24	19	177	40	13	26	150	56	9	32	237	11	19
35	227	43	24	223	193	241	167	33	0	0	48	1	44	15	216	125	238	1	111
201	225	78	35	70	35	84	93	9	229	195	116	46	62	2	195	48	18	205	176
2	14	0	32	19	205	92	3	48	14	21	95	205	113	3	245	1	1	0	247
241	18	14	1	6	0	195	116	46	205	3	38	71	4	126	7	16	253	230	1
38	0	111	201																

DOUBLE DENSITY SCREEN COPY

2 of 2

10 REM LOADER - USE IF YOU DO NOT HAVE TIMACHINE
20 FOR I=64750 TO 64750+605
30 INPUT (I);"? ";J
40 POKE I,J: NEXT I

By Keith Skapinski

205	23	255	33	74	255	34	108	92	33	127	0	229	33	27	0	193	237	105	205
144	254	33	127	0	229	33	65	0	193	237	105	205	144	254	33	127	0	229	33
8	0	193	237	105	205	144	254	33	175	0	34	74	255	229	33	0	0	34	80
255	33	252	255	34	82	255	203	124	225	195	96	254	33	127	0	229	33	27	0
193	237	105	205	144	254	33	127	0	229	33	76	0	193	237	105	205	144	254	33
127	0	229	33	0	0	193	237	105	205	144	254	33	127	0	229	33	3	0	193
237	105	205	144	254	33	0	0	34	76	255	229	33	255	0	34	84	255	225	195
53	254	33	0	0	34	78	255	42	76	255	229	42	74	255	193	69	205	59	255
124	181	202	157	253	42	78	255	17	192	0	25	34	78	255	42	76	255	229	42
74	255	43	193	69	205	59	255	124	181	202	185	253	42	78	255	17	48	0	25
34	78	255	42	76	255	229	42	74	255	43	43	193	69	205	59	255	124	181	202
214	253	42	78	255	17	12	0	25	34	78	255	42	76	255	229	42	74	255	43
43	43	193	69	205	59	255	124	181	202	243	253	42	78	255	35	35	35	34	78
255	205	28	255	205	11	255	1	0	32	205	205	254	124	181	194	187	254	205	78
19	33	127	0	229	42	78	255	193	237	105	205	144	254	33	127	0	229	42	78
255	193	237	105	205	144	254	33	127	0	229	42	78	255	193	237	105	205	144	254
42	76	255	35	34	76	255	237	91	84	255	235	167	237	82	226	67	254	124	238
128	242	124	253	33	127	0	229	33	10	0	193	237	105	205	144	254	42	74	255
237	91	82	255	25	203	122	34	74	255	237	91	80	255	32	1	235	167	237	82
226	112	254	124	238	128	242	55	253	33	127	0	229	33	27	0	193	237	105	205
144	254	33	127	0	229	33	50	0	193	237	105	205	144	254	195	187	254	33	127
0	68	77	237	104	38	0	17	109	0	205	197	254	229	33	127	0	68	77	237
104	38	0	17	237	0	205	197	254	124	181	209	40	1	235	124	181	194	144	254
201	33	22	43	217	201	33	22	43	217	201	175	237	82	103	111	200	44	201	62
7	15	245	205	175	47	213	197	205	175	47	225	124	181	227	120	32	11	177	193
40	4	241	63	24	22	241	24	19	177	40	13	26	150	56	9	32	237	11	19
35	227	43	24	223	193	241	167	33	0	0	48	1	44	15	216	125	238	1	111
201	225	78	35	70	35	84	93	9	229	195	116	46	62	2	195	48	18	205	176
2	14	0	32	19	205	92	3	48	14	21	95	205	113	3	245	1	1	0	247
241	18	14	1	6	0	195	116	46	205	3	38	71	4	126	7	16	253	230	1
38	0	111	201																



Dear Subscriber

To celebrate the anniversary of *Listing*, I am including excerpts from the last 3 years of publication.

At present, the *Test* library only goes back as far as January 1986.

If you have earlier issues of *Listing* and would like to donate them to the *Listing* library, please contact me.

In future issues, I hope to include more excerpts from past editions of *Listing*.

Your Editor
Fred Stern

JUST FOR FUN

"Out of SYNC"

Mousetrap

M. Hampson

In "Mousetrap" your objective is to trap the mouse which is represented by the O. Your position is shown by the \$. By constantly decreasing the amount of space the mouse has to run in, you will finally trap it in a small enough space and win the game. You decrease the space by building walls with the arrow keys. While you can go off the sides, you

```

1 PRINT "
2 FOR Z=1 TO 20
3 PRINT CHR$ 8;TAB 31;CHR$ 8
4 NEXT Z
5 PRINT "
6 LET U=1+PEEK 16396+256*PEEK
16397
7 LET P=U+34+INT (RND*30)+3*
INT (RND*20)
8 LET O=(32+(RND*.5)*2)*SGN (
RND-.5)
9 LET Q=U+48
10 LET GO=0
99 LET A=0
100 LET R=A+1
101 IF A=9 THEN GOTO 8000
102 IF PEEK (P+D) THEN GOTO 900
0
105 POKE P,O
110 LET P=P+D
1200 POKE P,52
2000 IF PEEK O<>118 THEN POKE O,
0
210 IF INKEY$="8" THEN LET O=O+
1
211 IF INKEY$="5" THEN LET O=O-
1
212 IF INKEY$="6" THEN LET O=O+
30
213 IF INKEY$="7" THEN LET O=O-
30
220 IF PEEK O<>118 THEN POKE O,
13
225 LET GO=GO+1
230 GOTO 99

```

cannot go off the top or bottom. Your score will be displayed in the upper right hand corner. The aim is to get the lowest score possible.

Graphics line notes:

1 and 5: A (32).

8010: Inverse space (3), "GOT HIM. YOUR SCORE IS" in inverse characters, inverse space (2).

```

8010 PRINT AT 0,0;"
005
8020 PRINT 500-GO;"
8030 PAUSE 50000
8031 IF INKEY$="K" THEN GOTO 6
8035 CLS
8040 RUN
9000 GOTO 9500+D*10
9160 IF PEEK (P-33)=PEEK (P-1) T
HEN LET D=34
9161 IF PEEK (P-33) AND D=-34 TH
EN LET D=32
9162 IF PEEK (P-1) AND D=-34 THE
N LET D=-32
9163 GOTO 100
9180 IF PEEK (P-33)=PEEK (P+1) T
HEN LET D=32
9181 IF PEEK (P-33) AND D=-32 TH
EN LET D=34
9182 IF PEEK (P+1) AND D=-32 THE
N LET D=-34
9183 GOTO 100
9320 IF PEEK (P+33)=PEEK (P-1) T
HEN LET D=-32
9321 IF PEEK (P+33) AND D=32 THE
N LET D=-34
9322 IF PEEK (P-1) AND D=32 THEN
LET D=34
9736 GOTO 100
9840 IF PEEK (P+33)=PEEK (P+1) T
HEN LET D=-34
9841 IF PEEK (P+33) AND D=34 THE
N LET D=-32
9842 IF PEEK (P+1) AND D=34 THEN
LET D=32
9843 GOTO 100

```

Unvader

M. Hampson

You have all played various kinds of invader in which the ships are streaking in from above your base and you must defend yourself. Usually you are greatly outnumbered by a fleet of ships.

Have you ever wanted to be on the other side? Now you have that opportunity. "Unvader" lets you play the game from the other side. You are the attacker coming in from the top of the screen, and the ZX81 is trying to shoot you down.

Your mission is to land your ship safely on the hostile planet's surface. To do this you must dodge the shots aimed at you as you descend. Use the 5 key and the 8 key to move left or right and the 6 key to descend.

This program sets up the graphics for your ship, the ZX81's firing base, and the missiles can be seen. A hit on your ship is shown graphically.

Graphics line notes:

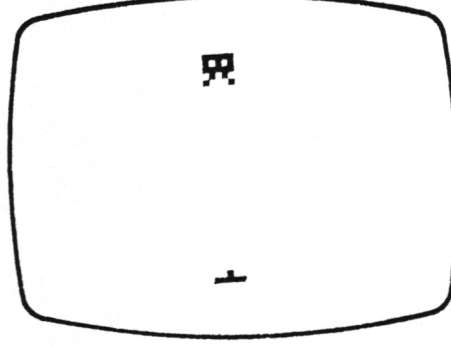
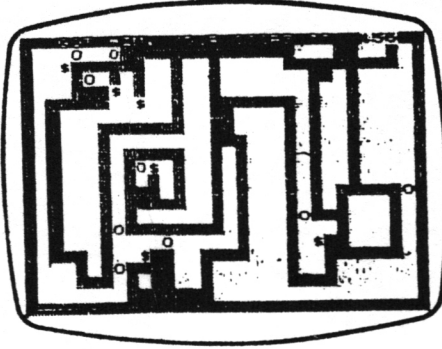
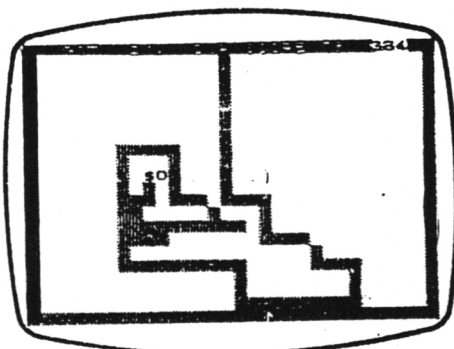
150: E, E, 5, R, R, 1, 6, W, 4.

210: 5

```

10 LET P=15
20 LET Q=1
30 LET R=P
40 LET C=0
50 LET B=C
110 LET A=R+SGN (P-R)*(RND*.5)
120 LET P=P+(INKEY$="8")*(P<>29)
-(INKEY$="5")*(P<>0)
130 LET Q=Q+(INKEY$="6")
140 CLS
150 PRINT AT 0,P;"
";TAB P;"
";TAB P;"
";TAB P;"
160 IF Q=19 THEN GOTO 300
170 PRINT AT C,B;"
"
180 LET C=C-1
181 IF C<0 THEN GOTO 190
182 LET B=R+1
183 LET C=20
190 PRINT AT C,B;
200 LET K=PEEK (PEEK 16398+256*
PEEK 16399)
201 IF K<>0 AND K<>118 THEN GOT
O 400
210 PRINT "
"
220 GOTO 100
300 PRINT AT 10,10;"**SUCCESS**"
301 STOP
400 PRINT AT 0+2,P-2;"*BOOM*"

```



Draw and Store

James John Hollandsworth

Draw and Store not only allows you to draw a picture, but also to store your picture on tape for later use. When you have entered the program (or LOADED it), type in GOTO 1 and ENTER. The computer will ask if you want to draw the picture it has stored to be put on the screen or to erase and start a new picture.

The direction keys are used to move the pixel around. Holding the shift key down while pressing the keys leaves a trail.

When you want to save a picture, hit ENTER and the display file will be PEEKed and put into a character array. SAVE the program and its array on tape. When you LOAD the tape later, you can also easily substitute your favorite drawing routine for the drawing routine section of the program.

Program notes:
1-80: The drawing routine.
505-550: Loads the array with the contents of the display file.
600-750: Reconstructs the picture from the character array.

2K RAM

```
1 REM JJH 1-31-82
2 REM USE GOTO 1
3 GOTO 600
10 LET Y=0
15 LET X=0
20 PLOT X,Y
25 PAUSE 40000
30 POKE 16437,255
35 LET A=CODE INKEY$
40 IF A=118 THEN GOTO 500
50 IF A=108 THEN UNPLOT X,Y
55 LET X=X+1*(A=35 OR A=115)*
X<47)-1*(A=33 OR A=114)*(X>0)
60 LET Y=Y+1*(A=35 OR A=112)*
Y<43)-1*(A=34 OR A=113)*(Y>0)
80 GOTO 20
505 FOR A=1 TO 22
510 FOR B=1 TO 32
520 LET A$(A,B)=CHR$(PEEK (PEEK
K 16396)+256*(PEEK 16397)+33*(A-
1)+B)
530 NEXT B
540 NEXT A
550 STOP
600 PRINT "2K ROM DRAW A PICTURE"
E"
610 PRINT "NEW PICTURE? Y OR N"
620 INPUT D$
630 CLS
640 IF D$="N" THEN GOTO 700
650 DIM A$(22,32)
660 GOTO 10
700 FOR A=1 TO 22
710 FOR B=1 TO 32
720 PRINT A$(A,B);
730 NEXT B
740 NEXT A
750 GOTO 10
```

1K RAM

```
1 PLOT X,Y
2 PAUSE 40000
3 LET A=CODE INKEY$
4 IF A<100 THEN UNPLOT X,Y
5 LET X=X+1*(A=35 OR A=115)*
X<47)-1*(A=33 OR A=114)*(X>0)
6 LET Y=Y+1*(A=35 OR A=112)*
Y<43)-1*(A=34 OR A=113)*(Y>0)
7 GOTO 1
```

Number Nine

Jon Passler

The object of Number Nine is to overwrite the digits 0 to 9 in order without recrossing your path or exceeding the boundaries of the playing area.

Enter line 1. Note that keywords are used to save memory. Do not type them in letter by letter. First enter 1 PAUSE, backspace, enter UNPLOT, and backspace again, and enter REM. Proceed to enter the rest of the characters shown in the line.

Graphic line notes:

1: T, A, and 3.

21: graphics space.

31: A.

After entering the program, enter in the immediate mode, i.e., without a line number:

LET R=16514

LET B=156

LET C=165

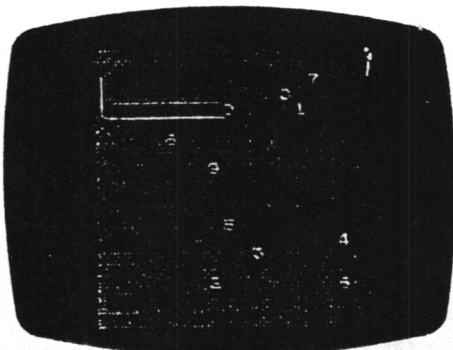
LET S=15

LET O=2

LET K=1+PEEK 16396+256*

PEEK 16397

K will have to be reinitialized if any changes are made in the length of the



```
1 REM J=Y$=NOT $4 UNPLOT YU,
NOT ( PAUSE TAN
3 RAND USR R
5 FOR A=B TO C
7 PRINT AT RND$5+0,RND$5+0;CH
R$
9 NEXT A
11 LET X=NOT PI
13 LET Y=X
15 FOR A=B TO C
17 PRINT AT X,Y;CHR$ A
19 LET I$=INKEY$
21 PRINT AT X,Y;" "
23 IF I$<"I" OR I$>"H" THEN GO
TO 3+0
25 LET X=X+(I$="H")-(I$="I")
27 LET Y=Y+(I$="K")-(I$="J")
29 LET L=K+X+21+Y
31 IF PEEK L=CODE " " THEN GOT
O 3+0
33 IF PEEK L=A THEN NEXT A
35 IF A>C THEN POKE L,CODE "U"
```

program. Once the variables have been entered, (do not enter) CLEAR or RUN or they will be erased. Use GOTO 1 to "run" the program.

Use the I, J, K, and M keys to move the flashing black character at print position O,O. This is the character to use in overwriting the digits 0 to 9, and it should alternate between being an inverse space and an inverse representation of the next digit to be overwritten. Before starting however, make sure all digits) to 9 are on the gray field and that none got overwritten by another. If you successfully overwrite 0 to 9 then you will be rewarded with a W to indicate a win. If you are not successful, the program will end with a 0/35 error message.

Eliminator

Sheldon Maloff

In Eliminator the object is to maneuver your spaceship to eliminate as many stars as possible by running over them.

The stars are indicated on the screen by the asterisk. Your ship's view screen will display a constellation of eight stars. Your space ship is moved down by the A

key and up the L key. You have 10 chances to cross the screen. On each passage you try to eliminate as many of the stars as possible. Upon each crossing, your score is updated to reflect how many stars you have eliminated and eight new stars appear.

Graphics notes:

2: inverse space

```
1 FOR Z=SGN PI TO VAL "256"
2 PRINT " ";
3 NEXT Z
4 LET P=PEEK VAL "16396"+VAL
"256"
5 LET S=NOT PI
6 LET R=VAL "133"+P
7 FOR T=SGN PI TO VAL "10"
8 FOR Z=SGN PI TO VAL "8"
9 LET X=RND*VAL "263"+SGN PI+
P
10 IF PEEK X=VAL "118" THEN GO
TO VAL "9"
11 POKE X,VAL "151"
12 NEXT Z
13 FOR Z=SGN PI TO VAL "31"
14 IF PEEK (R+Z)=VAL "151" THE
N LET S=SGN PI
15 POKE R+Z,VAL "146"
16 POKE R+Z,VAL "128"
17 IF INKEY$="A" THEN LET R=R+
VAL "33"
18 IF R=VAL "264"+P THEN LET
R=R-VAL "33"
19 IF INKEY$="L" THEN LET R=R-
VAL "33"
20 IF R<P THEN LET R=R+VAL "3
3"
21 NEXT Z
22 PRINT AT SGN PI,SGN PI;S
23 NEXT T
```


LONG
ISLAND
SINCLAIR
TIMEX GROUP

L.I.S.T.ING

January
1986

KEX BD. PG

Issue Price \$1.50

MEETING NOTES - DECEMBER 1, 1985

The December LIST Group meeting was held at Huntington Public Library at 2:00PM on Sunday, December 1. There were 21 Members in attendance. The Treasury was reported sound and is anticipated to show a surplus at year end. Membership number 129 has been assigned and current active membership stands at 118. Some members have paid in advance for next year (one has even paid up through October '87).

Elections were held for the 1986 officers. The results were:

President: Chuck Russell
Treasurer: Steve Kaye (Pro tem)
Newsletter Editors: I. Goldsmith & P. Donnelly
Librarians: Tape-C. Russell
Paper-T. Skapinski
Corresponding Sec'y: J. Street
Data Base Coord: M. Cohen

NEXT MEETING

The officers will be installed at the January meeting, which will be held in the Huntington Public Library at 2:00PM on January 12th.

The use of bulk mail was discussed; while rates are low, delivery is slow. Steve Kaye was asked to investigate and report on the savings/benefits of this method.

ANNOUNCEMENTS

Nazir P. reported on the Spectrum 128. There are 2 units in the U.S. that he knows about. One is with SUM and the other with Bob Dyl (EMC). Reviews are forthcoming, but the unit seems to have simple bank-switching, the TS 2068 Sound Chip and RGB. A review appeared in the December issue of Your Spectrum. Nazir notes that the SCLD (S) are not TS 2068 type. Nazir also showed us a Zebra Expansion Interface - Version 2. Zebra has taken delivery of the first 100 boards and is shipping these. As reported earlier, the board has "twistor" capabilities (I.E. Spectrum (bus), TS 2068 bus, and circuit patterns necessary for mounting a Spectrum ROM on board, and fitting the RGB circuit and jack. It can also be used as a mini-development board. MI disconnect and reset space are provided. The current version has been tested successfully with A&J, wafadrive, IF one, and the disk drives.

Stewart N. announced specials on QL, Scott Foresmen books and bare board interface prices for LIST members. Call for the QL deal. The IF boards may be the next group hardware project. Zebra will not sell bare boards outside the group as they cannot be supported that way (i.e., no warranty). Stewart expects to receive a CPM module from Portugal on Monday, December 2nd. He panned the Sinclair TV.

The Scott Foresmen books (reviewed in back issue of LISTing) will be available at the January meeting for \$3.00 each. Zebra also has a number of working and broken ZX81's for sale, cheap. Also announced were: Tech Draw Junior which uses a joystick instead of the Koala pad, and new software for OS64. Finally, Stewart mentioned that because of basic design limitations, the use of any but Zebra (TP) drives with the Zebra Disk Drive system voids the warranty. M script is now available on disk.

Cedric B. noted some problems with his Zebra disk controller and Stewart volunteered to provide a new one.

DEMOS & HARDWARE

Bob Gilder and Nazir helped Myles C. build his Oliger emulator, just before the meeting. Most people who bought the boards have assembled them, now.

Mart B. showed us his 8 bit "centronics" port which he built using only some pullup resistors, a connector, and the sound chip on the 2068.

Stoney McJ demoed his QL. He showed us some very nifty graphics routines, as well as the standard application packages. Another QL was hooked up to an RGB monitor with excellent results.

Jeff S. gave many members a first hand look at professional software development. He hooked up his A&J, Hot-Z, Centronics printer and bank-switched 16K rampack and started throwing code in an attempt to provide a print spooler or buffer. Not quite ready yet, but it is possible.

Paul D. showed us a \$25 monitor from American Design Components. It works, but he recommends only experienced hobbyists try it.

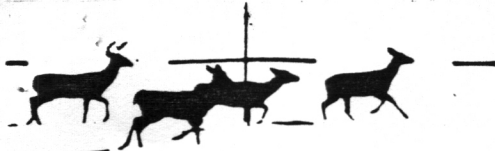
SUBSCRIPTION NOTICE

Please check your mailing label. Above your last name you will see the month and year in which you will receive your last issue of LISTing (LLIST) Newsletter. If this number does not agree with your records please let us know. This is a good time too, to request information on specific subjects for next years newsletters or just let us know what your special needs are.

LIST GROUP

P.O. BOX 438

CENTERPORT, N.Y. 11721-0438



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JANUARY 1986

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NEXT ISSUE:
Special Anniversary Issue
The complete Listing Index - Compiled
by Heinz Henken. Lists all issues of
Listing and the index to articles from
issue #1 through January '86.

AVAGADRO'S NUMBER
by Myles Cohen

I ALWAYS BELIEVED THAT THE BEST WAY TO LEARN A SUBJECT WAS TO LEARN FROM A TEACHER. IF THAT WASN'T POSSIBLE THEN TEXT BOOKS WERE SUPPOSED TO BE THE NEXT BEST....

I HAVE FOUND THAT I'VE BEEN MISTAKEN ALL THESE YEARS. I AM THINKING SPECIFICALLY ABOUT MY COLLEGE CHEMISTRY TEACHER WHO SPENT THREE FUTILE WEEKS TRYING TO TEACH US THE MEANING OF AN ELUSIVE CONCEPT CALLED A MOL.

"A MOL IS AVAGADRO'S NUMBER OF ATOMS OF AN ELEMENT. ITS WEIGHT IS DIFFERENT FOR EACH ELEMENT BUT EVEN THOUGH THE WEIGHTS DIFFER, THE AMOUNT IS THE SAME. DO YOU SEE?" NO WE DIDN'T.

"I'M SPEAKING OF THE GRAIN MOLECULAR WEIGHT OF AN ELEMENT. THERE ARE 6.02 TIMES 10 TO THE 23RD POWER ATOMS IN A MOL. THAT IS AVAGADRO'S NUMBER. NOW DO YOU UNDERSTAND?" WE JUST SAT AND LOOKED BLANK.

"WHY DO YOU JUST LOOK AT ME? I AM BEING AS CLEAR AS I POSSIBLY CAN. WHAT'S WRONG WITH YOU PEOPLE? A MOL IS THE GRAIN MOLECULAR WEIGHT OF A SUBSTANCE WHICH, ALTHOUGH THE SAME AMOUNT AS ANOTHER SUBSTANCE, HAS A DIFFERENT WEIGHT." WE KNEW HE WAS USING THE ENGLISH LANGUAGE BUT WE GOT NO MEANING FROM IT.

TEXT BOOKS ARE NO GOOD FOR THE SAME REASON. THEY ARE PRINTED IN ENGLISH BUT THEY ARE NOT VERY EASY TO LEARN FROM... PERHAPS BECAUSE MOST TEXT BOOKS ARE WRITTEN BY TEACHERS. SOMEONE ONCE EXPLAINED THAT IF TEXT BOOKS WERE UNDERSTANDABLE, MOST TEACHERS WOULD BE OUT OF A JOB. PERHAPS SO...

BUT TEACHERS ARE NOT THE ONLY ONES WHO CAN BE BASTRUSE. IF YOU REALLY WANT TO GET LOST AMONG VERBAGE, TRY READING THE INSTRUCTIONS TO MOST SOFTWARE WRITTEN FOR THE TIMEX SINCLAIR COMPUTERS. FROM "UU-CALC" TO "HOT-Z" TO "SMART TERM 2".... I COULD GO ON AND ON AND ON AND ON.

TRYING TO UNDERSTAND THE INSTRUCTIONS FOR MOST DATA BASE PROGRAMS AND WORD PROCESSING SOFTWARE IS SOMEWHAT AKIN TO MOUNTAIN CLIMBING WHILE WEARING ROLLER SKATES. ALL THIS HAS BEEN BUT PRELIMINARY. MY PATH THROUGH THE LITERATURE

Viewpoint

HERE I THINK IT MIGHT BE WELL TO TELL YOU A BIT ABOUT THE EXTENT OF MY COMPUTER KNOWLEDGE. I BOUGHT MY FIRST COMPUTER THREE YEARS AGO. A TIMEX 1000 WAS THE ONLY ONE IN MY PRICE RANGE. IT LOOKED LIKE A TOY. THE INSTRUCTION BOOK'S ASSURANCE THAT EXPERIMENTATION WOULD IN NO WAY HURT THE COMPUTER GAVE ME THE CONFIDENCE TO GO AHEAD AND I SLOWLY AND PAINFULLY STARTED TO LEARN HOW TO USE BASIC. BEING SELF TAUGHT, I AM STILL IN THE PROCESS OF LEARNING BASIC.

AS I LEARNED MORE AND MORE ABOUT THE 1000 I FOUND THAT THE "TOY" WAS A REAL COMPUTER. THIS WAS NO FAULT OF THE TIMEX COMPANY BUT LARGELY DUE TO THE Z-80 MICROPROCESSOR IN ITS GUTS. IN ALL THE BOOKS I HAVE SINCE READ IN ALL THE MAGAZINES I HAVE PERUSED, IN ALL THE CONVERSATIONS WITH ENTHUSIASTS I'VE HAD, I BECAME INCREASINGLY AWARE THAT YOU AIN'T NOBODY IFN YA DON'T KNOW MACHINE CODE OR ASSEMBLY LANGUAGE.

OKAY, I'M WILLING TO LEARN. HOW DO YOU START? THE SAME WAY YOU LEARNED BASIC, FROM BOOKS. AND SO BECAME MY QUEST FOR THE "PROMISED VIRGIN". THE TRUTH IS I WAS ONLY INTERESTED IN LEARNING ENOUGH SO THAT I WOULD BE ABLE TO USE ALL THE GOODY ROUTINES THAT WERE PUBLISHED. BUT I WAS TO BE FRUSTRATED AT EVERY TURN. THE ROUTINES WERE THERE BUT EVERY AUTHOR SEEMED TO ASSUME THAT HIS READER KNEW A GREAT DEAL MORE THAN I DID. EVEN WHEN I DECIDED THAT THE RIGHT WAY WAS TO START FROM SCRATCH AND LEARN ASSEMBLY AND MACHINE CODE FROM THE GROUND UP, I FOUND THAT ALL THE "HOW TO" BOOKS WERE WRITTEN BY PEOPLE WHO WERE BORN FROM A GENIUS GENE POOL AND EXPECTING THE SAME OF ME.

EACH AUTHOR FROM BAKER TO LOGAN TO LEVENTHAL TO ZAKS DESCRIBED EVERYTHING IN SUCH DETAIL THAT I CAME AWAY FROM EACH SESSION IN AN INCREASING STATE OF CONFUSION. I AM STILL THERE.

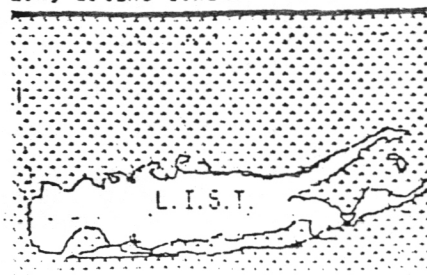
WHEN I READ THOSE BOOKS I FELT LIKE THE FELLOW WHO ASKS THE DOCTOR WHAT HE IS SUPPOSED TO DO ON THE WEDDING NIGHT AND IS HANDLED SEVERAL VOLUMES OF ANATOMY, ANTHROPOLOGY, BIOLOGY AND ENZYMOLOGY. I REALLY THINK THAT THERE HAS TO BE A BETTER WAY.

THOSE MACHINE CODE BOOKS DESCRIBE REGISTERS, GO THROUGH LONG INVENTORIES OF TYPES OF INSTRUCTIONS, GIVE ARID LESSONS CONCERNING HEXADECIMAL AND BINARY NUMBER SYSTEMS, GORGE YOU WITH THINGS LIKE "TWO'S COMPLEMENT" AND "FLOATING POINT" AND GIVE LISTS AND TABLES AT THE BACK. BUT NOWHERE IN ANY OF THEM ARE THEY UNDERSTANDABLE NOR DO THEY TEACH A BEGINNER HOW TO PROGRAM IN MACHINE CODE OR HOW TO THINK IN ASSEMBLY LANGUAGE.

PERHAPS IT'S ME WHO IS AT FAULT. PERHAPS I'M TOO OLD, OR TOO DUMB, OR TOO LAZY, OR NOT MOTIVATED ENOUGH TO LEARN FROM THESE CRYSTALLINELY CLEAR BOOKS. I DON'T THINK SO. I THINK THAT SOMEONE SHOULD WRITE A SIMPLE BOOK ABOUT THIS LOW LEVEL LANGUAGE. AFTER ALL, IF A DUMB MACHINE CAN LEARN IT, WHY CAN'T I?

OH YES, I LEARNED WHAT A MOL WAS. NOT FROM A TEACHER, INCIDENTALLY, BUT FROM SOMEONE WHO KNEW THE ART OF ATTACHING THE THING THAT HAS TO BE LEARNED TO A CONCEPT THAT ONE ALLREADY KNOWS. "YOU'RE FAMILIAR WITH THE WORD "PAIR"? IT IS A WORD THAT DESCRIBES TWO OF ANY THING. YOU ARE ALSO FAMILIAR WITH THE WORD "DOZEN" WHICH HOLDS TWELVE THINGS. WELL, A MOL IS A THING THAT HOLDS AVAGADRO'S NUMBER OF THINGS. JUST AS A PAIR OF ELEPHANTS WEIGHS MORE THAN A PAIR OF SHOES...SO A MOL OF ONE ELEMENT CAN WEIGH MORE THAN A MOL OF ANOTHER. THE AMOUNT IS THE SAME EVEN THOUGH THE WEIGHTS ARE DIFFERENT. DO YOU UNDERSTAND?" YES I DO... FINALLY!

Long Island Sinclair Timex Group



TAPE CATALOG - "MULTI-TAPE"

Here's Bob Malloy's "multi-tape" program. With it, you can get a full catalog of all the programs on a tape. Instructions are in the program. You can enter and use the routine now or wait for Library tape #5.

```
1 PRINT "If you have numerous
programs on a tape, e.g. LIST li
brary tapes, this program may h
elp. It uses the header reade
r from SYNTAX and saves the d
ata in arrays c, n$, t$. (Up t
o 300 programs)"
```

```
2 PRINT "The first time use
option 5 from menu. Thereafter
use option 4. BUT you must CLEA
R 63999 before loading the tape
to use option 4! You can stop
reading headers anytime by pre
ssing BREAK."
```

```
3 PRINT "Program will read b
oth 2063 and Spectrum headers b
ut will only run on a 2063": P
RINT "To get hard copy from op
tions 1,2,3,7 & 8 turn printer
on before making selection"
```

```
4 PRINT "If program stops wi
th an error enter GOTO 55 (Do
not use RUN) DELETE lines 1 to
4 when you are familiar with th
ese instructions"
```

```
5 ON ERR RESET
```

```
6 PRINT "-----multi tape by
RWM": PRINT "-----Press any key f
or menu": PAUSE 0
```

```
9 GO TO 55
```

```
10 CLS : FOR l=1 TO n
```

```
20 PRINT l;TAB 3;t$(l,16 TO 27
),n$(l)
```

```
21 LPRINT l;TAB 3;t$(l,16 TO 2
7),n$(l)
```

```
30 NEXT l
```

```
40 STOP
```

```
50 SAVE "multi tape" LINE 55
```

```
55 ON ERR GO TO 5
```

```
56 LET dir=0
```

```
60 CLS : PRINT "Choose your o
ption by number"
```

```
65 PRINT "1. List all program
s"
```

```
68 PRINT "2. Find a specific
program"
```

```
72 PRINT "3. List all program
s on a specific tape"
```

```
75 PRINT "4. Continue catalog
ing tapes"
```

```
78 PRINT "5. Start cataloging
tapes"
```

```
80 PRINT "6. SAVE"
```

```
81 PRINT "7. See header readi
ngs"
```

```
82 PRINT "8. Show names of ta
pes"
```

```
83 PRINT "0. STOP"
```

```
85 IF INKEY$="1" THEN GO TO 1
```

```
88 IF INKEY$="2" THEN GO TO 1
```

```
90 IF INKEY$="3" THEN GO TO 2
```

```
92 IF INKEY$="4" THEN GO TO 9
```

```
93 IF INKEY$="5" THEN GO TO 9
```

```
94 IF INKEY$="6" THEN SAVE "m
ulti tape" LINE 1
```

```
95 IF INKEY$="7" THEN GO TO 4
```

```
96 IF INKEY$="8" THEN GO TO 5
```

```
97 IF INKEY$="0" THEN PRINT "
Enter GOTO 55 to Restart":
```

```
ON ERR RESET : STOP
```

```
98 GO TO 85
```

```
100 CLS : INPUT "Name of progra
m? ";a$
```

```
110 FOR q=1 TO n
```

```
120 IF t$(q,18 TO (LEN a$+17))=
a$ THEN PRINT q;TAB 5;t$(q,18
```

```
TO );n$(q): PRINT
```

```
121 IF t$(q,18 TO (LEN a$+17))=
a$ THEN LPRINT q;TAB 5;t$(q,18
```

```
TO );n$(q)
```

```
130 NEXT q
```

```
140 STOP
```

```
200 CLS : LET dir=1: GO SUB 500
```

```
: INPUT "Name/side of tape? ";a
$
```

```
210 FOR q=1 TO n
```

```
220 IF n$(q, TO LEN a$)=a$ THEN
```

```
PRINT q;TAB 4;t$(q,18 TO );n$
```

```
(q);t$(q, TO 3)
```

```
221 IF n$(q, TO LEN a$)=a$ THEN
```

```
LPRINT q;TAB 4;t$(q,18 TO );n
$(q)
```

```
230 NEXT q
```

```
240 STOP
```

```
300 CLS : FOR l=1 TO n
```

```
310 PRINT l;TAB 3;t$(l)
```

```
311 LPRINT l;TAB 3;t$(l)
```

```
320 NEXT l
```

```
330 STOP
```

```
340 STOP
```

```
400 INPUT "Number Please? ";b
```

```
410 CLS : FOR l=1 TO n
```

```
420 IF l=b THEN PRINT "1;TAB 4
```

```
;t$(l): PRINT "Start Address "
```

```
;c(1,2): PRINT "Data Length "
```

```
;c(1,1): PRINT "Auto Start at "
```

```
;c(1,3): PRINT "Prog/Vars Leng
th ";c(1,4)
```

```
421 IF l=b THEN LPRINT "1;TAB
```

```
4;t$(l): LPRINT "Start Address
```

```
";c(1,2): LPRINT "Data Length
```

```
";c(1,1): LPRINT "Auto Start
```

```
at ";c(1,3): LPRINT "Prog/Vars
```

```
Length ";c(1,4)
```

```
430 NEXT l
```

```
440 STOP
```

```
500 CLS : PRINT n$(1)
```

```
501 LPRINT n$(1)
```

```
510 FOR l=2 TO n
```

```
520 IF n$(1)<>n$(l-1) THEN PRI
```

```
NT n$(l)
```

```
521 IF n$(1)<>n$(l-1) THEN LPR
```

```
INT n$(l)
```

```
530 NEXT l
```

```
535 IF dir=1 THEN LET dir=0: R
```

```
ETURN
```

```
540 STOP
```

```
9850 CLS : INPUT "Did you rememb
```

```
er to CLEAR 63999 before loadin
```

```
g this tape? Y/N ";c$
```

```
9855 IF c$="Y" OR c$="y" THEN G
```

```
9972 DIM c(300,4): DIM n$(300,13
```

```
): DIM t$(300,28)
```

```
9973 INPUT "Name/Side of tape ";
```

```
p$
```

```
9974 FOR n=1 TO 300
```

```
9975 CLS : PRINT "-----LOAD A TAP
```

```
E AND PRESS"PLAY"-----"
```

```
9977 LET n$(n)=p$
```

```
9980 DATA 55,62,0,221,33,60,250,
```

```
17,17,0,205,14,250,201,33,252,0
```

```
,205,34,250,58,33,250,211,244,2
```

```
19,255
```

```
9981 DATA 203,191,211,255,251,20
```

```
1,0,243,245,219,255,203,255,211
```

```
,255,219,244,50,33,250,62,1,211
```

```
,244,241,233
```

```
9982 RANDOMIZE USR 64000
```

```
9983 LET a=64060: LET b=PEEK a:
```

```
LET s=b
```

```
9984 IF b=0 THEN PRINT "PROGRAM
```

```
: ";: LET t$(n, TO 17)="PROGRAM
```

```
"
```

```
9985 IF b=1 THEN PRINT "NUMERIC
```

```
ARRAY: ";: LET t$(n, TO 17)="N
```

```
UMERIC ARRAY"
```

```
9986 IF b=2 THEN PRINT "CHARACT
```

```
ER ARRAY: ";: LET t$(n, TO 17)=
```

```
"CHARACTER ARRAY"
```

```
9987 IF b=3 THEN PRINT "BYTES:
```

```
";: LET t$(n, TO 17)="BYTES"
```

```
9988 FOR a=64061 TO 64070: LET b
```

```
=PEEK a: PRINT CHR$ b;: LET t$(
```

```
n,a-64043)=CHR$ b: NEXT a: PRIN
```

```
T
```

```
9989 LET b=PEEK a+256*PEEK (a+ )
```

```
: PRINT "DATA LENGTH: ";b: LET
```

```
c(n,1)=b
```

```
9990 LET a=a+2: LET b=PEEK a+256
```

```
*PEEK (a+1): IF s=3 THEN PRINT
```

```
"START ADDRESS: ";b: LET c(n,2
```

```
)=b
```

```
9991 IF s<>0 THEN GO TO 9995
```

```
9992 IF b<1 OR b>9999 THEN GO T
```

```
O 9994
```

```
9993 PRINT "AUTO START AT: ";b:
```

```
LET c(n,3)=b
```

```
9994 LET a=a+2: LET b=PEEK a+256
```

```
*PEEK (a+1): PRINT "PROG/VARS L
```

```
ENGTH: ";b: LET c(n,4)=b
```

```
9995 PAUSE 200: NEXT n: GO TO 99
```

```
75
```

LIST Group

JAN-FEB LIST

1987

Jan.-Feb.1987 Double Issue Price \$3.00

In This Issue

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Minutes of the December 14, 1986 LIST meeting

The meeting commenced at 2:30 PM. Eighteen members were in attendance.

Old Business:

Updated QL purchase information was presented by Nazir Plashtoon. Nazir stated that those members who had provided him with their names and addresses for a QL purchase would receive documentation from Doug Dewey shortly. Nazir stated that A+ does accept plastic and it probably be in the purchasers best interest to make payment with either a Visa or Mastercard in the event that if a problem with your shipment arises, You have a margin of control over the situation. A sur-charge of 4% will be added to the purchase cost, however, well worth it.

The club tape price schedule was reviewed and will remain as stated in the previous issue of LIST with the exception for members attending the monthly meetings. The cost for the current tape (6.8) for attending members will now be \$1.50. We hope this will attract more members to attend meetings.

A club tape will be offered free of charge to all new members. Please do not mistake this offer for a free club tape when you renew your annual LIST membership. New members only.

RENEW YOUR SUBSCRIPTION

Bob Malloy was nominated and unanimously voted in as the LIST Treasurer. Good Luck Bob.

Another nomination was placed, voted on and accepted for H. Rait, our club tape librarian to purchase a Sears Dubbing Deck to produce the LIST software. The cost is in the range of \$60.00. The dubbing deck will be available to the membership at all future meetings for the purchase of LIST software.

New Business:

Nominations for club officers for 1987 are scheduled at the January 11, 1987 meeting. Please plan on attending this important event.

Stoney McM was contacted by the Cleveland Timex User Group with reference to a club tape exchange. H. Rait's address will be forwarded to them to make the necessary exchange arrangements.

Paul D. distributed copies of "The Guide To T/S Telecommunications" by T/S USERS. There were not enough copies to go around and we hope Paul can provide additional copies for those members who would like copies.

Newsletter exchanges with other user groups was discussed. We must receive newsletters from other groups on a one-for-one basis or we may have to cancel our exchange agreement.

S.Kay requested current product information from T/S software/hardware vendors be made available to club members.

Patrick F. volunteered to type material for the LIST newsletter on an IBM typewriter.

Stoney McM. discussed the New Jersey Computer Show. He demonstrated a QL graphics program on his QL and \$55.00 monitor. Stoney then conducted a one hour seminar on QL Program Control. This was quite a professional performance on Stoney's part. It is hoped that he will continue these QL seminars at future meetings for those of us who plan on purchasing a QL in the near future.

Some TS 1000 & 2068 software was available for sale by some members at the end of the meeting.

Bob M. sold Club Tape 6.0 to members in attendance.

Announcement

Mid West T/S Computer Fest.

The time and location of the T/S Computer Fest is finalized. The show will take place in Indianapolis, Indiana, the weekend of May 3-4. Single registration before 3-1-87 is \$4.00. After that date single registration will be \$6.00. For booth/table information contact

Paul Holmgren
Exec. Director
5231 Wilton Wood Court.
Indianapolis, Ind. 46254

TELECOMMUNICATION

LIST

Read the note in the next column.

We have run a few copies of the "Guide..." and they will be available at the next meeting. It is an excellent introduction to telecommunication with T/S machines, does everything claimed, and even has the main menu screen from several BBS's. This is a real time saver. If you study it before you log on to a board. The book also contains, in one tome, most of the published "fixes" to the available modem software (e.g., patches for Byte Back, Tasmun II, etc.).

Steve and Pete asked for criticism, so here it is: We'd like to see some more hardware items. E.g., the 7050 schematic, Byte Back, (if they'll let you), the "Zebrax" MS 212 port, your main modem, and the techniques for detecting call waiting and direct connecting 2 modems without a phone line. Oh yes! and the mode for getting a 2050 working with it. Printer interfaces (e.g., printerout for Brother EP-44, 21 etc.) would also make a nice supplement.

Still, we repeat that this book is the best! It even has an infinite performance/price ratio.

NOTE: As of this writing the book is already complete and is available from Pete. There is a review of it in the Feb. '87 issue of COMPUTER SHOPPER. Judging it from the preliminary public domain version that Pete sent to LIST, we very highly recommend that you spend the five bucks and do yourself a favor.

In the January '87 issue of THE PLOTTER an article from RAMTOP was reprinted, which LIST readers might find of interest. The title of the article is Modem Fix (2050), and the author is Kurt A. Gabby. The "fix" relates to the \$10-\$25 2050 Modem boards that many of LIST members bought and found that most of these were good boards, or had such a small problem that it could be fixed. The article is long, but let me quote a relevant portion:

"I also found one good reason why my computer was crashing while dialing. This was due to the fact that a small resistor and capacitor that were in series with the Reed relay were snipped and pulled up! I talked to a couple of guys that had bare board modems and found that theirs had the same parts snipped. I resoldered them and that my computer no longer crashed. I also went a step further to rewire the ring detect so that it was isolated better. You can do this very easily. You only need buy a few cheap parts and find a spare 1/2 hour.

Here is how to do it. First disconnect the modem from the phone line, its 9 volt adapter, and the computer (with all power OFF). Now set the modem upside down on a sheet of foil (to prevent static discharge).

Now you will have to remove 4 rubber feet and remove the 4 screws under the rubber feet. Now carefully remove the front and panel. The PC board will lift out. The resistor and capacitor that were snipped R-28 and C-22. I found that I was able to push both components back down and solder them. You may find that yours are just too short. If you need to replace them, get a 1/8 watt 100 Ohm resistor and a 470 pF capacitor rated 150 volts or better.

Kurt then goes on to describe the ring detect circuit and the extra isolation that the mentioned fixed it in the LIST library.

MEMO FRIENDS IN THE LIST GROUP!

Well it took a bit longer than expected, but HERE, AT LAST, IS OUR 'GUIDE TO T/S TELECOMMUNICATIONS'.

AS PROMISED IN OUR FIRST LETTER, IT COVERS ALL THE T/S BULLETIN BOARDS, ALL THE MODEMS, ALL THE TERMINAL SOFTWARE AND MOST OF THE INTERFACES WE COULD FIND. IT COVERS DOWNLOADING IN GREAT DETAIL.

THE BEST PART ABOUT IT IS THAT IT IS ENTIRELY IN THE PUBLIC DOMAIN AND MAY BE COPIED FREELY. WE REQUEST THAT YOU MAKE THIS COPY AVAILABLE TO YOUR MEMBERSHIP FOR REPRODUCTION. FOR THOSE

MEMBERS WHO DON'T LIVE IN NEW YORK AND STILL WISH A COPY, THEY CAN GET ONE BY SENDIN' \$12.00 TO EITHER OF US (TO COVER COPIES & POSTAGE).

WE ALSO PLAN A REVISED EDITION WHICH WILL CONSIST OF THE FOLLOWING:

- + ALL THE TEXT IN VERSION 1.0 IN FULL TYPE SIZE
- + MORE BOARDS COVERED
- + SELECTED HELP FILES FROM THE BOARDS
- + A LISTING OF ALL THE FILES AVAILABLE FOR DOWNLOAD (ON ALL THE BOARDS, ABOUT 90% COMPLETE)
- + SOME INFO ON INTERNATIONAL TELE COMMUNICATIONS
- + WHATEVER CORRECTIONS WE RECEIVE ON VERSION 1.0
- + ADDITIONAL INFORMATION AS YET UNSPECIFIED

ALL FORMATTED FOR AN 8 1/2 X 11" LOOSE LEAF PATTERN (WHICH WE FEEL IS THE ONLY WAY TO GO GIVEN THE RATE OF CHANGE IN THE BBS WORLD.) THIS LAST VERSION IS NOT CURRENTLY AVAILABLE, PROBABLY IN JANUARY, IT WILL BE AVAILABLE FOR \$5.00.

IF YOU'D LIKE TO REPRODUCE ANY PART OF THIS GUIDE IN YOUR USER GROUP NEWSLETTER, PLEASE FEEL FREE TO DO SO. WE ALSO WANT THIS GUIDE TO OTHER USER GROUPS. ALSO, PLEASE MAIL OUR ADDRESSES:

THANKS FOR YOUR HELP,
SINCERELY

STEVE BISH
18414 DELOISE AVE.
CERRITOS, CA. 90701

PETE FISCHER
P.O. BOX 2002
TEMBE, AZ 85281

85281

Pete Fischer

LISTING

Newsletter

Newsletter of the
Long Island Sinclair\Timex
Users Group

.....
Incorporating NYTSE

January, 1988

"SPECIAL TECHIE ISSUE"

IN this issue: hardware projects, and MC programming...why?
Find out by reading 'Newsletter Newsnotes'.

NEXT MEETINGS: IMPORTANT!

The GUY FROM TIMEX! OFFICER ELECTIONS! DUES DUE!! All at Harvey's
house, Feb. 21. Call 516-791-6247 for more info. PLEASE NOTE: Meetings
are 3rd Sunday + Mon.
NYTSE meets Mon. Feb. 22, 7PM, Miss Kim's, Park Ave. S., between 21stth and 22nd St.

L.I.S.T.
5 Peri Lane
Valley Stream, NY 11581



TO:

FIRST CLASS MAIL
DATE MEETING NOTICE
Please DON'T delay!

=====

LISTing Listing

Please send submissions to:

Joe Newman, 325 W. Jersey St.,

#2D, Elizabeth, NJ 07202

or send items for the LIST group

to: LIST, Harvey Rait

5 Peri Lane

Valley Stream, NY 11581

PLEASE NOTE THE NEW LIST ADDRESS

yearly LIST dues- \$15

=====

URGENT BUSINESS!!!

ONE- it's time to elect new officers of LIST. Show up at the February meeting if you wish to participate in the election process- hopefully to become an officer!

TWO- most important- DUES ARE DUE! Send in your yearly dues NOW! Keep the TS spirit alive! Support your systems- support LIST. Make \$15 checks or money orders payable to LIST.

NEWSLETTER NEWSNOTES

Why a 'technical issue'? Well the main reason is that I'm stuck with the Editor's Dilemma again- yep, no more articles. Oh I have a few, but they're more hardware projects. So bust out the Tasword, fire up the Quill, or if you must- ink up the pen and SEND IN SOME MORE ARTICLES! I truly thank all of you who have submitted and continue to submit articles. On the most part the articles have been of top quality- keep up the good work!

As for the meetings- as the front page says "The man from TIMEX will be at the Feb. meeting"!!! Actually he is Mr. Skyrme, President of the American office of Psion, Inc. His purpose is to show off the Psion Organizer devices, but we know better. We'll let him show us his gadget, then we'll zap him with those TS questions! Mr. Skyrme was the Product Development Director for the 2068 at Timex.

Mr. Skyrme is also scheduled to speak at the upcoming Trenton Computer Fair. He will be speaking at our T/S

representation, scheduled for April 23 in the afternoon. As in previous years, our groups will be present at the fair to show Sinclair is still going good. This fair draws T/S people from up & down the east coast, so make plans to attend... April 23 & 24.

Myles is doing well, and may make it to the March meeting. If any of you tried to contact him at the address printed in the last issue, my apologies if you had any trouble reaching him. Myles is no longer at that particular spot. Last I know he was in the V.A. Hospital, 1st Ave. and 24th Street, ward 8 North, Bed 24.

If anyone is interested in using a bar code reader with the QL, please contact me. I have a working point-of-sale database system for the QL, which is used with a bar code wand. I also have completed a program which can print bar code labels on an Epson compatible printer (i.e., the QL Printer, which uses double density bit graphics). The program can print bar codes of all upper case alpha characters and the numbers. By the way, the p-o-s program is a full featured program comparable with those on 'other' machines. Also, I have a cash register inventory program for the 2068, and plan to release one for the QL which does not require the bar code wand, and also a generic bar code database which can be customized by the end user for a variety of applications. Again, contact me if you're interested.

Bill Jones of the TS-2068 Update says he needs a Telecomputing writer and someone to keep going with extra memory programming for the 2068. Contact him if you'd like to get involved at:

TS-2068 Update
1317 Stratford Avenue
Panama City, FL 32404

VIEW OF THE TOP
OR COMPONENT
SIDE OF PRINTER
P.C. BOARD

CONNECT RESISTOR
AND LED BETWEEN
W2 AND D5. NOTE
POLARITY OF LED
AS DESCRIBED IN
ARTICLE.

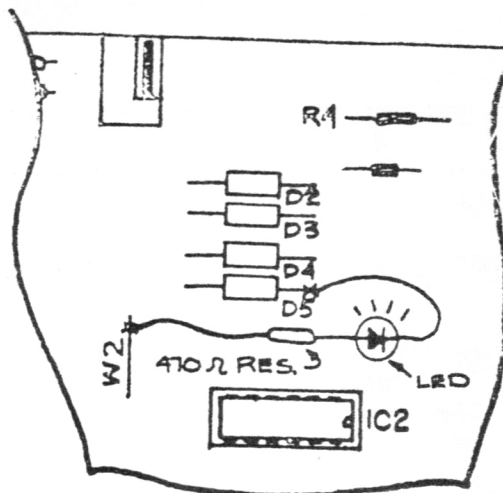
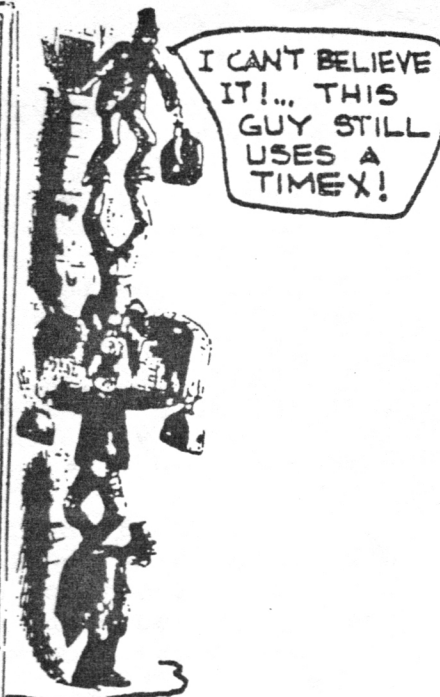


FIGURE ONE



AN LED FOR YOUR 2040

A common complaint of many TIMEX equipment owners is the lack of a power on LED (light emitting diode) on the equipment. The following paragraphs describe how to add a LED to a TIMEX 2040 or ALPHACOM 32 thermal printer. It is a simple project but be advised that the author and the LIST GROUP are not responsible for any damage you may do to your equipment.

The parts required for this project are a LED of your choice (almost any color or size will do as long as it will fit into the printer's case), one 470 ohm 1/8 to 1/2 watt resistor, a short length of "telephone" or wire wrap wire and a bit of rosin core solder. The tools required are a Phillips head screwdriver, wire cutters or knife, a small soldering iron and drill for the LED mounting hole.

The first step is to open the printer's case. To do this remove the paper from the printer, turn the case over and remove the four screws holding the two halves together. Turn the printer upright and lift the top off. The PC board and printer mechanism should remain attached to the bottom of the case. Next drill a hole to mount the LED. The front right hand corner of the case seems appropriate but it can be mounted anywhere there is room inside for the LED's leads. Be sure the case will close BEFORE you drill, as the saying goes "Measure twice, cut once."

Once the case is prepared, the LED and resistor can be connected. Refer to FIGURE ONE for the connection locations. Solder one end of the 470 ohm resistor to the jumper wire marked "W2", then a length of wire long enough to reach the mounted LED should be soldered to the other end of the resistor. Solder the end of this wire to the anode of the LED. The anode lead on round LED's has a small flat spot next to it on the "mounting rim". If you are unsure of the proper connection, solder it to either lead. Now solder a length of wire from the remaining lead to the right side of diode 5 on the PC board (marked D5). Connect the power to the printer with the cover off to test the LED. If the diode fails to light with the connections complete, unsolder the two wires to the diode's leads, switch them around and solder again. Test the LED again by connecting the power. If it still fails to light, check the solder joints for a proper connection or replace the diode in case it is defective.

The last step is to reassemble the case. Close the cover making sure none of the wires will interfere with the printer mechanism, the switches or mounting screws. Reinstall the four screws taking care not to strip the plastic threads in the case. Insert the paper and the printer is ready for use.